

# The Echinoderms Newsletter<sup>1</sup>

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This Newsletter exceeds 80 pages in length. We should have issued it many months ago, but numerous other duties distracted us. We calculate that every month's delay adds a further six pages to the Newsletter, and we're thankful now that we didn't delay for a further six months!

Within the next two months or so we will send you a copy of our complete mailing list (now reduced to around 500 names).

John Lawrence generously contributed several sections to this Newsletter: the information on the 1981 Conference, notice of forthcoming books, list of papers from All-Union Echinoderm Colloquium at Tbilisi, 1979, and a list of recent Ph.D. and Masters' dissertations. David Nichols contributed a report on a discussion held at the European Echinoderm Colloquium, 1979. R.U. Gooding sent us some recipes for sea urchins, Barbados style.

Production of the Newsletter would not have been possible without the help of Kevin Baird, Mary Parrish and Cynthia Gust. We are very grateful to them.

David L. Pawson  
Maureen E. Downey

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<sup>1</sup>The Echinoderms Newsletter is not intended to be a part of the scientific literature, and should not be cited, abstracted or reprinted as a published document.

## A new catalogue of type-specimens

Catherine H. Felton and Robert M. Woollacott of the Museum of Comparative Zoology, Harvard University, Cambridge Massachusetts 02138, U.S.A. have prepared a catalogue of the type-specimens of echinoderms in the collections of the Museum of Comparative Zoology. The catalog comprises xix + 172 pages, and gives locality information for each species listed, together with information on the kind of type-material represented (Holotype, Paratype, Lectotype, etc). It is available free of charge to institutions with major echinoderm collections, and at cost (\$7.00) to individuals in the U.S.A. and elsewhere. Please address enquiries to Dr. Woollacott, and make checks payable to "Museum of Comparative Zoology".

## SEA EGG DISHES

(sent by R.U. Gooding)

(by Carmeta Fraser, SUNDAY ADVOCATE-NEWS, September 11, 1977)

### SEA EGG AND BREADFRUIT CASSEROLE

### METHOD:

Sea Egg from two shells  
cooked and well seasoned.

2 lbs. cooked breadfruit  
(sliced)  
2 large onions  
1 large sweet pepper chopped  
1 cz. flour  
1 oz. margarine  
1 pint vegetable stock  
2 ozs. grated cheese  
salt and pepper to taste.

Grease a casserole or pie dish.  
Place some slices of breadfruit  
on the bottom, then sea egg,  
onion slices and sweet pepper.  
Continue this with sea egg, onion  
slices and sweet pepper. Continue  
this with sea egg mixture at the  
top. Make a white sauce by blend-  
ing the margarine, flour and stock.  
Stir until thick, and pour over  
the dish. Sprinkle on the grated  
cheese and bake in a moderate  
oven 350 degrees for 20-25 min.  
Serves about 6.

### SEA EGG BURGER

#### METHOD:

Sea Egg from 2 shells cooked and cleaned  
1 medium size onion chopped  
2 tbs. flour  
2 tsp. lime juice  
A piece of hot green pepper chopped.  
2 tbs. tomato detchup or pulp  
milk to mix  
salt and peper to taste  
Flour and breadcrumbs  
Oil for frying  
Cucumber pickle for garnish  
Hot toasted buns.

Melt the margarine in a pan. Add Sea Egg and onion stirring until Sea Egg is lightly browned. Mix salt other seasonings and flour together in a mixing bowl. Sitr in the Sea Egg mixture along with other ingredients. Form into flat cakes and coat in breadcrumbs and flour mixture. Fry lightly in hot fat. Serve on hot toasted buns. Garnish with cucumber pickle.

### SEA EGG PUDDING

#### METHOD:

Sea Egg from 2 shells (raw)  
3 ozs finely chopped suet or margarine  
2 ozs breadcrumbs  
A piece red hot pepper  
2 tsp. lime juice  
1 medium size onion chopped  
1 tsp. finely chopped parsley  
salt and pepper to taste  
2 eggs  
1 pint milk or vegetable stock

Grease well a mould or pudding basin.  
Chop the Sea Egg finely add to the suet, breadcrumbs, lime juice and seasonings and mix well.  
Beat the eggs slightly, add the milk or stock and stir into the mixture.  
Put into the mould or basin. Cover with greaseproof paper and steam gently for about  $1\frac{1}{4}$  hours.  
Approximately 4-5 servings.

## INTERNATIONAL ECHINODERM CONFERENCE - 1981

The next International Echinoderm Conference will be held September 14-18, 1981, in Tampa, Florida. Dr. John M. Lawrence, Department of Biology, University of South Florida, Tampa, Florida 33620, U.S.A. will be organizing the meeting. Other members of the Organizing Committee are: Andrew Campbell (United Kingdom), Arthur Giese (U.S.A., Honorary Chairman), Alain Guille (France), Michel Jangoux (Belgium), Haruo Kanatani (Japan), Yulin Liao (People's Republic of China), Gena Manchenko (U.S.S.R.), David Pawson (U.S.A., Co-Chairman), Frank Rowe (Australia), Tine Valentincic (Yugoslavia), and Peter Voogt (The Netherlands). The deadline for receiving abstracts for papers to be presented at the meeting is May 1, 1981. Individuals who desire to receive the second notice and information about the meeting should notify Dr. Lawrence.

## FORTHCOMING BOOKS

Echinoderms -- present and past. Proceedings of a Colloquium, Brussels, September 1979. Dr. Michel Jangoux (Editor). Balkema Books, P.O. Box 1675, Rotterdam, The Netherlands. Contains about 100 papers and reports on all aspects of echinoderm biology.

Echinoderm nutrition. Michel Jangoux and John M. Lawrence (Editors). Balkema Books. In preparation. The book will include chapters on food perception; food and feeding mechanisms, Crinozoa (D. Meyer), Holothuroidea (C. Massin), Echinoidea (C. de Ridder, J. Lawrence, M. Jangoux), Asteroidea (M. Jangoux), Ophiuroidea (G. Warner); structure and function of digestive organs, Crinozoa (M. Jangoux), Holothuroidea (J.-P. Feral, C. Massin), Echinoidea (C. de Ridder, M. Jangoux), Asterozoa (M. Jangoux); digestion (J. Lawrence); epithelial absorption (D. Bamford); utilization of nutrients by post-metamorphic echinoderms (J. Lawrence); translocation of nutrients (J. Ferguson); intermediary metabolism of nutrition (R. Ellington); steroid metabolism (P. Voogt); excretion (M. Jangoux); nutrition of gametes (C. Walker); nutrition of embryos (G. Cognetti); effect of feeding on the environment, Holothuroidea (C. Massin), Echinoidea (J. Lawrence, P. Sammarco), Asteroidea (B. Menge).

### An Echinoderm Society? An Echinoderm Journal?

Report on a discussion at the European Echinoderm Colloquium, Brussels: 2nd to 8th September, 1979.

by David Nichols

Members attending the highly successful Colloquium at the Universite Libre de Bruxelles were again given the opportunity to express opinions on the desirability of a more formal structure to bring together echinoderm workers throughout the world. As with previous discussions along these lines, the general feeling that emerged was that the somewhat unofficial way in which we get together every few years works perfectly well, and any more formal organisation might cause a lack of spontaneity, and might become too cumbersome and restrictive. So no recommendation for the formation of a society of echinoderm workers was made.

The second matter raised concerned publications, and the meeting discussed several aspects. The feature of our organisation that all members felt needed to be protected was this Newsletter, which not only keeps workers in touch with each other, but allows an exchange of information, views, requests, etc., that a more formal publication is unlikely to fulfil. Grateful thanks were expressed to Drs. David Pawson and Maureen Downey, on whom the principal work in getting out the Newsletter has fallen since its inception, and also the meeting asked that its appreciation be expressed to the Smithsonian Institution for bearing the cost of production and distribution. It was mentioned that Pawson and Downey were anxious to find another Editor, and this matter would be explored between now and the next Conference in Tampa in 1981.

So far as a possible echinoderm periodical is concerned, the meeting felt that the financial climate in the scientific world was not conducive to such a development at present, and in any case some members expressed the view that there was a positive advantage in spreading echinodermological papers among the general biological literature so that they could be more widely noticed. The conclusion was that the question of a special journal should not be proceeded with.

On the other hand, there is an excellent case for gathering papers together for a specific purpose, such as publication of the proceedings of a conference, or papers on a theme initiated by an individual. Papers read to the Brussels Colloquium would be published in this way, and Dr. Michel Jangoux, the Convener, mentioned that the publisher he has retained for this purpose, A.A. Balkema of Rotterdam, was prepared to consider future volumes in the same way.

During the discussion, Professor Norman Millott raised the point that a new edition, or successor to, R.A. Boolootian's Physiology of Echinodermata (Wiley Interscience, 1966), which had originated from the first ever international echinoderm symposium in Washington D.C. in 1963, would be a most useful addition to the scientific literature, and members were asked to discuss the matter informally between now and the Tampa Conference.

Jangoux gave a brief summary of the publication of papers from the Brussels Colloquium. He will chair an Editorial Board consisting of Lawrence (Tampa, Florida), Guille (Paris), Rose (Bedford College, London) and Nichols (Exeter). The refereeing and editorial procedures will be completed by February, 1980 and the volume will be published by May/June, 1980. The title of the volume will be Echinoderms - Present and Past: Proceedings of a Colloquium at the University of Brussels, and will be dedicated to the memory of Lucien Cuenot.

Proceedings of the All-Union Echinoderm Colloquium, Tbilisi, 1979

- Arendt, J.A., S.V. Rognov. About right-left side of Echinodermata.
- Belezev, G.M. Propagation and origin of Myriotrochidae (Holothuroidea: Apoda) and ways of forming deep underwater groups of animals.
- Belaeva, H.G. Geometry, orientation, terms, structure formula and reconstruction of the skeleton of fossil starfish.
- Bobrova, T.F. Ultrastructure of the muscle of starfish ambulacral legs.
- Brekov, V.A. The growth of the sea urchin Strongylocentrotus nudus Agassiz in the Vostok Bay of the Sea of Japan.
- Budin, J.N. Sea of Japan. The significance of test form in the systematics of sand collars.
- Varaksin, A.A. The development of the gonad in the sea urchin Strongylocentrotus nudus.
- Varaksina, G.S. The auxiliary cells in the oogenesis of the sea urchin.
- Vorobjev, V.A. The spread, dynamic, and manner of appearance of polyploid cells and their significance in the stomach of starfish.
- Ginda, D.A. Fossil crinoids in the lower Paleozoic of the south-west of the eastern Europe platform.
- Gnezdilova, S.M., B.C. Vasileva. Temperature dependence of the reproductive cycle of the sea urchins Strongylocentrotus in Peter the Great Bay.
- Gongadze, G.S. Paleogenic Echinoidea of Georgia.
- Gruzov, E.M., S.N. Yakovev. The yearly gonadal cycle of the Antarctic sea urchin Sterechnus neumayeri (Meissner).
- Dautov, S. Sh. The change of behavior reactions during development of larvae of Asteriidae.
- Dzjuba, S.M. Some peculiarity of deep underwater sea urchin Pourtalesia heptneri oogenesis.
- Evdokimov, V.V., U.S. Hotimchenko. The regulation of the reproductive processes of the sea urchin Strongylocentrotus nudus.
- V.V. Sova, U.P. Chugnev. Plasma membrane protein biosynthesis in larval cells of sea urchins during the early stages of development.
- Solovjev, A.N. Anical field evolution in spatangoids.
- Stukalina, G.A. Systematics of Crinoidea in Ordovik, Silurian, and lower Devonian in USSR.
- L.L. Terentjev, H.A. Terentjeva, V.A. Rasscasov. Comparative investigation on DNA-polymerase from sea urchin larvae.
- N.K. Utkina, O.B. Maksinov. Hinoid pigments and phylogeny of Echinodermata.



- Shcepin, V.V. Free amino acids in the gonad of the sea urchin Strongylocentrotus nudus.
- Endelman, L.G. Historical-morphological analysis of the sea urchin Holactypoida.
- Yakolev, S.N. The annual gonad cycle of the sea urchin Echinocardium cordatum in the Sea of Japan.
- Gizmundsky, A.V., E.P. Serteeva, V.S. Vasileva. Temperature adaptation of some common species in Peter the Great Bay, Sea of Japan.
- Isaeva, V.V. Cell interaction during morphogenesis of sea urchin larval skeleton.
- Kasyanov, V.L. Reproductive cycle of starfish Aphelasterias japonica.
- Klimova, V.L. The distribution of Ophiura sarsi and O. sarsi vadicola in Peter the Great Bay, Sea of Japan.
- Kolcova, E.M., O.B. Macsimov. Hinoïd pigments of the sea urchin.
- Korotchenko, O.D., T.Y. Mitchenko, S.V. Isay. Protaglandins of Echinodermata.
- Levin, V.S., E.T. Voronova. Assimilation of bacterial food by Far East sea cucumbers.
- Levina, F.B., V.A. Stonic, G.B. Elyakov. Glycoside biosynthesis in the starfish Patiria pectinifera.
- Litvinova, N.M. Some aspects of feeding ecology of Ophiura.
- Mamrova, E.C. Reproductive cycle of the starfish Distolasterias nipon.
- G.P. Manchenko, A.T. Pudovkin, O.L. Serov. The degree of genetic variability in sea urchin and starfish populations.
- Melikov, O.G. About the phylogeny of the family Seumaster in North Kavkas.
- Militsina, V.A. About Cupressocrinitidae from Devonian soil of the north and middle Urals.
- Mironov, A.N.. Observation of Echinodermata during submergence in "Paises."
- Moskvin, M.M. Sea urchin Coraster and Ornithaster in USSR.
- Moskvin, M.M., V.V. Shimanskaja. The strange group of sea urchin Echinocorya from Dania soil level.
- Polodgihina, A.T. Crinoidea from high and middle soil level of the Devonian in north-east Pribalhashja.
- T.S. Smirnov. Ophiuroidea (Echinodermata) from macrophyte rhizoids in the south-west Atlantic Ocean.
- T.S. Smirnov. About the family Theodoria (Ophiuroidea, Echinodermata).



Suggestions, requests, etc.

Ausich - requests reprints on fossil and living holothurians

Baker - requests that systematists working with the genus Amphiura get together sometime (by mail initially) to discuss the group. In the meantime perhaps there could be a moritorium on new species.

Berger - requests records of presence or absence of ciliate Protozoa from any echinoid species from the Southern Hemisphere, especially southern South America, South Africa and Australasia.

Bauer - requests any information on numbers of Diadema and habitat observed below 20 m.

Branstrator - would like to have dried specimens of non-North American asteroids and deep-sea asteroids.

Brower and Veinus - are there any data available on the strength of ligament and muscle fibers in living crinoids? What is the ontogenetic relationship between total volume and volume of tissue in living crinoids? Is this constant throughout post-larval life or does it vary, and if so how? What is the relationship between total volume, effective weight and weight in air during post-larval ontogeny of living crinoids? Are these constant? In other words is the density of a living crinoid constant throughout the post-larval ontogeny?

Caffi - seeks information on asexual reproduction of holothurians.

Challis - would like to have a whole, dry test of Recent Lovenia with or without spines.

Crump - would appreciate any records of Asterina gibbosa or A. burtoni from Israel.

Cunningham - would like to know dates and locations of any observations of brooding in amphiurid brittle stars; also whether brooding live young and broadcasting gametes have been observed as alternate strategies in the same species.

Dafni - seeks information on polychromatism in Tripneustes gratilla and previous works on polychromatism in echinoids in general. Also wants information on deformations in echinoids due to environmental factors.

Doty - would be interested in obtaining English translations of Japanese and Chinese papers relative to sea cucumber culturing.

Ellington - requests any observations of tolerances of holothurians to exposure to hypoxic or anoxic conditions.

Fay - recent revisions of the Pennsylvanian-Permian contact now place the Wolfcampian in the Pennsylvanian System. Thus, Wolfcampian echinoderms should be classed as late Pennsylvanian in age.

Feder - wishes to correspond with any biologists working on Ctenodiscus crispatus, Ophiura spp. and sea stars of northern waters. Special interest in feeding biology of Ctenodiscus.

Fernandez - requests any information on harvesting of tropical Atlantic holothurians for beche-de-mer.

Ferrand - would like to receive information and/or reprints of papers on lysosomal enzymes of yolk (histochemistry, biochemistry) and their participation in development of embryos.

Frankel - would like to have information on Phyllacanthus feeding habits, encrusted radioles, etc., and on echinoderm skeletal debris in sediments.

Franzen - in 1878 N.P. Angelin's monumental work on Silurian Crinoidea from Gotland, the *Iconographia Crinoideorum in stratis Sueciae siluricis fossilium*, was published. It contains 173 species referred by Angelin to 43 genera. Unfortunately, Angelin did not live to publish his own monograph, which may explain some of the shortcomings of the *Iconographia*. The Latin diagnoses are extremely brief; there are no descriptions; the illustrations are often misleading, specimens having been either heavily restored (not always correctly), generalized, or composed of several individuals, in some cases clearly belonging to different genera. What makes matters even worse is that hardly any of Angelin's type material remains in the Museum of Natural History in Stockholm. It is known that Angelin sold fossil material (even types) in order to complete the collections of the museum. I would be extremely grateful for any information on the whereabouts of the Angelin crinoids, the location of collections of Silurian crinoids from Gotland, Sweden, and the location of Gotland specimens not now in museum collections, particularly specimens belonging to the genus Carpocrinus (syn. Pionocrinus, Habrocrinus).

Gage - in connection with a longstanding interest in montacutid bivalves commensal with spatangoid urchins and other echinoderms, would be grateful for any records or unwanted material, and would be particularly interested in bivalve material from deep sea pourtalesiid urchins.

Glynn - would appreciate information on marking or tagging Acanthaster. Various vital stains and plastic fish tags have been tried without success.

Haude - would like to contact people investigating the body wall of chiridotid holothurians.

Hawkins - would like information on energetics of tropical sea urchins.

Hamada - would greatly appreciate information on specifics for the culturing of a sea urchin species of the Gulf coast of the U.S.A.

Hotchkiss - wishes to purchase all or parts of Mortensen's Monograph of the Echinoidea; wishes to receive abnormal starfish for dissection; wishes to receive Meyenaster gelatinosus for dissection.

Kikuchi - would like to have information on growth rates and longevity of ophiuroids under various climatic conditions.

Lewis, R. - would like information (references or unpublished material) on population dynamics of living and fossil echinoderms.

McEdward - requests information on techniques for measuring metabolic rate (oxygen consumption) of echinoderm larvae.

Nateewathana - would like to correspond with scientists interested in holothurians of the Andaman Sea.

Nauen - requests raw data on seasonal growth and respiration of asteroids.

Ohta - notes that more than 40,000 pairs of stereoscopic bottom photos from the shelf edge to depths of 7,500 m are stored in his laboratory. Echinoderms are conspicuous faunal components.

Pagett - requests any information, references, observations which are unpublished, and formalin preserved or dried material concerning ophiuroid-sponge associations.

Parsley - requests all available mitrate material for a monograph of the North American species.

Pearson - would like to hear from anyone who has successfully tagged holothurians.

Petersen - requests reprints of recent papers on ecology and/or physiological ecology of echinoderms.

Rahaman - would like to have references and/or reprints of papers covering paleoecology of echinoids.

Roux - requests information on unpublished localities of stalked crinoids for biogeographical studies from upper Cretaceous to Recent.

Scally - is interested in specimens of echinoids in which there is disorganization of the teeth or Aristotle's lantern (missing teeth, fractured alveoli, etc). Also, would like to have wet or dry specimens of Echinothrix spp., Astropyga spp.

Shepherd - has been studying population explosion of the echinoid Paracentrotus lividus in the NW Mediterranean and would greatly appreciate information on population increases of this urchin elsewhere in its geographic range.

Siebertz - is interested in information on migrations of recent or fossil echinoids.

Siegel - requests specimens, papers or distributional notes on Chiridota laevis from regions other than the Maine coast of U.S.A. Would like to exchange information on reproductive biology of apodous holothurians, especially occurrences of protandric and protogynic hermaphroditism, larval development, spawning behavior, unusual breeding cycles, use of gonadal indices, and special staining techniques for holothurian gonadal tissues.

Tantichodok - would like to correspond with scientists interested in holothurians of the Andaman Sea.

Tertschnig - is interested in papers on grazing action of sea urchins in sea grasses and kelp beds. Would also like to have information on sea urchin distribution and ecology in general in Caribbean Thalassia and in Syringodium filiforme.

Thandar - would like to receive alcohol preservdd specimens of dendrochiroirotid holothurians, particularly of the genera Cucumaria, Pseudocnus, Ocnus and Trachythyone for comparative study with southern African forms.

Turner - is interested in purchase of asteroid and ophiuroid monographs.

Tyler - seeks details of ecology and biology (including distribution) of deep-sea ophiuroids.

Walenkamp - seeks literature (reprints) on the zoogeography of asteroids in (sub)tropical Atlantic waters and adjacent areas.

Waren - is interested in studying any gastropods found on echinoderms.

Wellington - would like information on any new techniques for determining age of echinoids.

Zammit-Maempel - requests comparative Echinocyamus material (Recent and fossil) and literature on Echinocyamus.

## Current Research Interests

- Abbott - Biology of echinoids at Maalaea Bay, Maui,  
Biology of echinoids at Tague Bay, St Croix USVI.
- Allen - Immune reactions in Echinus.
- Anderson - The distribution of pelmatozoan associations  
in punctuated aggradational cycles (PAC's).
- Anderson, J.M. - Histology of cardiac stomach, Oreaster.
- Arendt - Carboniferous crinoids (Moscow basin).
- Arnaud - Pelecypoda associated with antarctic echinoids.
- Ausich - A model for niche partitioning in Lower  
Mississippian crinoid communities, community types and  
geographic endemism of Lower Mississippian (carboniferous)  
crinoids (with N.G. Lane), evolution of the subclass  
Flexibilia (with S. M. Kelly).
- Baker - Australasian Euryalinida (revision); Tasman Sea and  
south Australian ophiuroids . . . ; Australasian  
heart-urchins (new forms).
- Bay-Schmith - Larval massive culture of the edible sea urchin  
Loxechinus albus.
- Bell - Implication of inferred anatomy, ontogeny and symmetry  
for the higher taxonomic categories of the Echinodermata.
- Belyaev - The descriptions of some new deep-sea Myriotrochidae  
(Holothurioidea) and revision of the generic composition  
of this family.
- Bergen - Taxonomy of Dendrochirote holothurians. Effect  
of predation on succession in a subtidal hard-bottom marine  
community.
- Bergen, M. - Effect of predators on succession in a subtidal,  
hard-substrate community in southern California.
- Berger - Systematics, morphometric and demic variation of the  
entocommensal ciliate protozoa found in echinoids.
- Bernasconi - Asteroidus Argentinos. VII fam. Echinasteridae.
- Binyon - Permeability.

- Birkeland - Echinoid grooves in tropical shores as beneficial for coral recruitment, factors favoring successful recruitment of Acanthaster.
- Birtles - Temporal and spatial distribution of epibenthic echinoderms on Great Barrier Reef shelf. Systematics of echinoderms from Great Barrier Reef.
- Blake - Relationships among the spinulosidan and some post-paleozoic fossil sea stars.
- Bockelie - Morphology, systematics, palaeoecology of primitive echinoderms from Scandinavia.
- Briskeby - Taxonomic and stratigraphic studies of crinoid ossicles. Thesis work.
- Brooks - NE Pacific holothuroidea.
- Branstrator - Paleoecology, paleobiology, systematics of asteroids from Western North American Ordovician.
- Bray - Microstructure of the ophiuroid endoskeleton.
- Breimer - Phylogeny shiraculate blastoids.
- Brett - Classification, and functional morphology of pelmatozoan attachment structures; echinoderm fauna of the Rochester Shale (Late Silurian); crinoids of the Mississinewa Shale (Late Silurian) (with B.D. Erdtmann); epizoans on Eucalyptocrinites from the Waldron Shale (Late Silurian) (with W.D. Liddell).
- Brito - Clypeaster aloysioi, an uncommon echinoid of the State of Rio de Janeiro, Brazil - to be presented on the VI Brazilian Congress of Zoology, Feb. 1979, Rural University of Rio de Janeiro.
- Broadhead - Evolution of Hexacrinidae; systematics and evolution of rhombiferan cystoids; functional morphology of pelmatozoan stem articulations; biostratigraphy and paleoecology of Ordovician echinoderms from the southern Appalachians.
- Broerckjes - Transport of metabolites in *Asterias rubens*. Vitellogenic proteins in *Asterias rubens*.
- Broom - Behavior of brittle-stars and crinoids.
- Brower and Veinus - Evolution of Calceocrinidae, growth and functional morphology of calceocrinidae.



In conjunction with Julia Veinus, dimerocrinitids from the Wenlock of England.

Brunel - With Bernard SAINTE-MARIE: Distribution and groupings in St. Lawrence Estuary and Saguenay Fjord.

Burke - Larval sensory structures, fate of larval structures, origin and development of adult structures.

Byrne - Ophiuroid nervous system, spinal nerve and ganglia.

Caffi - Reproductive Biology of Athyonidium chilensis (Semper) 1868. (Thesis).

Camargo - Distribution of echinoderms on the coast of Brazil.

Campbell - Pedicellarial populations of echinus esculencus and Psammechinus miliaris; sea urchins as substrates for barnacle cyprid settlement.

Campbell, D.B. - Systematics of the Echinasteridae, use of ossicle morphology in systematics.

Cannon - Endosymbiotic turbellaria of holothurians.

Caso - Monografias sobre los Equinodermos del Pacifico de Mexico.

Castilla - Heliaster helianthus and Meyenaster gelatinosus as predators of Concholepas concholepas, the chilian "Coco".

Castro - Behavioral ecology of crustacean symbionts.

Challis - Ph.D. topic - Palaeoecology and taxonomy of mid-tertiary maltese echinoids.

Chauvel - Revision des Cystoides et des Carpoides du Massif armoricain.

Chen - Reproductive biology of Tripneustes gratilla (L.) and collecting other echinoderms. Taxonomic study on sea urchins in Taiwan.

Cherbonnier - Holothurians of Madagascar, holothurians antarctiques, echinides des Philippines.

Chia - Spermatogenesis of a crinoid, Florometra serratissima (with Bickell and Crawford), Induction and development of exogastrulae in the starfish, Pisaster ochraceus (with Crawford), reproductive biology of a viviparous holothurian, Leptosynata clarkii.



- Crippen - Marine impact assessments and monitoring studies in Atlantic Canada and the Canadian Arctic.
- Christensen - Daily activity in relation to light and food in Astropecten irregularis.
- Clark - Asteroidea of the Atlantic.
- Cobb - Giant fibre systems.
- Costa - Benthic communities in the vicinity of Rio de Janeiro.
- Costelloe - Aspects of the biology and ecology of Aslia Cefevrei.
- Cousineau - Methodological: Lsopycuia Centrifugation (seaurchins).
- Crump - Ecology of Asteria gibbosa and A. phylactica.
- Cunningham - Taxonomy of intertidal amphiurid brittlestars, north of Pt. conception; distribution patterns of similar species.
- Cutress - Holothurians of Puerto Rico.
- Dafni - Biology of tripueuster gratilla in the northern Red Sea.
- Dartnall - Identity of Caymanostellidae from New Zealand.
- Dayton - Benthic ecology.
- Dearborn - Ecology of Ctenodiscus crispatus in the Gulf of Maine; feeding biology of Antarctic crinoids, asteroids, and ophiuroids.
- de Celis - Systematics, ecology of Tayabas Bay echinodermata. (Asteroidea and Ophiuroidea).
- Devaney - IIOE ophiuroid collection, SW Australian ophiuroid handbook.
- Doi - Feeding behavior.
- Donnay - Doloruite abnormalities in fossil shells.
- Eastwood- Environmental impacts of residential developments on estuarine and littoral areas of Staten Island.
- Ellington - The role of collagenases in the local degeneration process of Isostichopus badionotus.

- Emson - Comparative study of Echinoid growth, production etc. from different areas. (with P. Moore) Eophysiology of Amphiphilis squamatu (with J. Foote).
- Endean - Toxic materials elaborated by echinoids.
- Engel - ~~English~~ Maastricht Cretaceous Echinoids.
- Engstrom - zoogeography of regular urchins in the Caribbean.
- Ernest - Analyses of gut contents from Astropecten duplicatus - relationship of food consumed to its availability in the environment - study area Hutchinson Island, Florida.
- Eylers - Effects of inorganic ions on the cohesion of matrix polymers in the dermis of Holothurians.
- Fankboner - Feeding in sea cucumbers.
- Farmanfarmaian - None on echinoderms, but I have at least two papers in various stages of preparation. These are on sugar absorption in the intestine of thyone. Expecting to return to intestinal absorption of nutrients.
- Fay - Bromile formation, echinoderms.
- Feder - No direct echinoderm work published or in progress. OCSEAP Report on Northeastern Bering Sea including sea star distributions and some feeding biology.
- Fell - Antarctic echinoidea, North Atlantic echinoidea.
- Feral - Feeding and digestion of the intertidal Leptrosynapta. Structure and ultrastructure of the digestive tract. Enzymology. Taxonomy of holothurians.
- Ferber - Echinoderms of the Red Sea, echinoderm larvae in the plankton of the Gulf of Elat, Red Sea; Functional morphology of Spatangoida.
- Ferguson - Integumental nutrition.
- Fernandez - Natural history and population dynamics of Holothuria mexicana. Investigation of its suitability for commercial fishery producing beche-de-mer.
- Fenaux - Larval nutrition.
- Ferrand - Vitellogenesis in Asterina gibbosa, compared with this one in Asterias rubens.
- Fishelson - Biology and distribution of echinoids in the



- Hamada - Microtubules and microfilaments during reformation of embryonic form.
- Hancock - Survey of chagos Archipelago's Echinoderms (Peros Banhos).
- Hansen - Systematics and biology of the deep-sea holothurians: order Aspidochirota. Scandinavian holothurians (for Marine Invertebrates of Scandinavia).
- Harriott - Distribution patterns, growth rates and reproductive biology of holothurians at Huron Island and North Queensland.
- Haude - Middle Devonian Echinoderms of the Eastern Rheinisches Schiefergebirge.
- Haugh - With B.M. Bell: fossilization of viscera in primitive echinoderms, with B.M. Bell: biological organization and classification (revised at high rank) of Echinodermata, stereomic microstructure in fossil echinoderms.
- Hawkins - Ecological energetics of Diadema antillarum in Barbados, West Indies.
- Hecker - Ordovician Cysteroidea of the Leningrad region and Estonia.
- Hendler - Review of ophiuroid reproduction. Systematic analysis based on skeletal ontogeny.
- Hess - Distribution and ecology of Chariocrinus andreae (DESOR).
- Hickey - The reproductive biology of Tripneustes esculentus.
- Hidaka - Fine structure and mechanical properties of the catch apparatus of the sea-urchin spine.
- Hilgers - Skeletal systems, connective tissue - muscles.
- Hill - EC coupling in longitudinal retractor muscle.
- Himmelman - Regulation of reproductive cycles, benthic ecology.
- Hobaus - Coelomocytes (morphology, cytochemistry) from mediterranean echinoderms.
- Hoggins - None at the moment, except general field observations as I am teaching at present and have no facilities.

- Hopkins - Echinoderms of Eastern Gulf of Mexico, Echinaster and Ophioderma; Ophiactis; Ophiothrix problems.
- Hora - Holothuriidae from Brazil and rock-burrowing, action of Echinometra lucunter.
- Horowitz - Restudy of genus PENTREMITES with D.B. Macurda, Jr. and J.A. Waters.
- Hoshiai - Ecology of Antarctic benthos in coastal areas.
- Hoskin - Description of Mucronalia edulis n.sp. parasitic upon Holothuria atra.
- Hotchkiss - Ophiuroid ecology and systematics, Belize. Fossil echinoids of Antarctica, Patagonia, Southern Hemisphere. Autotomy in starfish.
- Hulbert - Role of Asterias vulgaris in 3 subtidal communities, offshore asteroid populations on Jeffries Ledge and Loshes Ledge in the Gulf of Maine.
- Irimura - Ophiurid fauna of Japan and Antarctic.
- Irvine - A study of algal succession in damselfish (Eupomacentrus planifrons) territories in San Blas, Panama; reproductive cycles of E. planifrons.
- Iwata - Physiology of reproduction.
- James - Distributional pattern of echinoderms of Sri Lanka and South East coast of India.
- James, D.B. - Sea cucumber culture and distributional pattern of echinoderms in India and Sri Lanka.
- Jangoux - Echinoderms nutrition. Asteroids systematic.
- Jaramillo - Holothuroidea from the archipelagos of Chiloe and Chonos, Southern Chile.
- Jeffries, R. - Origin of tunicates; origin of nutrates; cinctate "caysoids".
- Jensen - Test skeleton.
- Jesionek-Szymanska - Morphology and microstructure of fossil echinoid teeth.
- Kanatani - Mechanism of oocyte maturation and spawning.
- Kao - Comparative physiology of starfish (Respiration).

- Kardas - Update, echinoderms of New Jersey mass migrations, invasions, and deaths, as well as other unusual group "behavior".
- Katsura - Electron microscopic studies on early development of sea urchin embryo.
- Kawamura - Ecological studies on the planktonic and deposited larvae of sea urchins, Strongylocentrotus.
- Keegan - Aggregation.
- Keller - Studies of benthic communities of Central California.
- Kelly - (with W.I. Ausich) The ordovician cladid Cupulocrinus had the evolution of the Flexibilia. The tegmen and madraporite, and the functional morphology of the anal sac of "Dendrocrinus" casei.
- Kelso - Morphologic and ecologic variation in Echinometra
- Keough - Organization of epifaunal communities on the shell of a bivalve mollusk (Pinna bicolor).
- Kesling - Paleoecology of Middle Devonian silica formation. New starfish from the silica formation.
- Kikuchi - Growth and population fluctuation of two amphiuroid ophiuroids, Amphioplus japonicus and Icalia syntharacha.
- Kobayashi - Marine pollution bioassay by sea urchin eggs and embryos.
- Kolata - Camerate crinoids of the Bromide Formation, Stylophora of the Eastern Interior.
- Komatsu - Development of sea-stars, especially Luidia, Astropecten, Ctenopleura and Asterina.
- LaBarbera - Suspension feeding mechanisms and metabolic costs in Ophiopholis aculeata.
- Lane - Carboniferous microcrinoids.
- Larrain - Irregular fossil and recent echinoids of Chile, Asteroids of Southern Chile, taxonomy, biogeography, East Pacific zoroasteridae.
- Lawrence - Nutrition and Physiological ecology of Lytechinus

variegatus and Luidia clathrata.

- Lewis, D. - Echinoids from the Barton Beds (Ur. Eocene) of the Hampshire Basin, England.
- Lewis, R. - Holdfasts and root systems in Fossil Echinoderms of the Bromide Formation of Oklahoma, Sprinkle (Editor): Revision of the genus Sciadiocrinus (with Strimple).
- Liao - The Echinoderm fauna of continental shelf of East China Sea. The aspidochirote holothurians of China.
- Liddell - Distribution, habitats and food of Recent Caribbean crinoids. Variation within Caribbean crinoid populations.
- Litvinova - The study of nutrition biology of the ophiuroids.
- Lonning - Oil pollution studies.
- Lubchenco - Community structure and organization in a tropical rocky intertidal zone (Pacific coast of Panama); Comparative effects of herbivores in New England, Panama and Oregon.
- Lucas - Acanthaster planci and hybrids. Ophidiaster granifer parthenogenesis (with Yamaguchi).
- Mackie, A. - (not working on echinoderms at moment). Saponins of asteroids.
- Mackie, S. - Community structure on Northern Gulf of California reefs.
- Macurda - Ecology of Indo-Pacific crinoids; evolution of Pentremites (blastoids).
- Madsen - Norwegian Sea Asteroids. Deep Sea Asteroids and Ophiuroids.
- Maczynska - Holasteroidea from the Upper Cretaceous of the South Poland.
- Magniez - Ph.D. on the reproductive cycle and biochemistry of Abatus cordatus (Echinoidea, spatangoidea).
- Maluf - Gulf of California echinoderm distribution and abundance, biogeographic considerations.
- Marcus - Development of twinned sea urchins. Genetic aspects of morphological variation.
- Marques - Study of the echinoderms in general in the Portuguese waters.



- Marsh - (with F.W.E. Rowe) Revision of Asteroid genera Hacelia, Ophidiaster and Tamaria. (with M. Jangoux) Revision of Fromia.
- Marshall - Systematics of Australian genera.
- Martin, E.- Gut contents of Astropecten duplicatus from nearshore waters off the east coast of Florida; survey of echinoderms from three locations off the east coast of Florida.
- Martin - Reproductive patterns in the genus Patiriella; settlement and growth of crinoids, particularly Tropiometra afra, in unstable habitats.
- Martinsson - Pedicellariae of Palaeozoic Asterozoa.
- Mayer - A study of the population ecology of the sea urchin Strongylocentrotus polyacanthus.
- Mayou - Tertiary Asteroid ossicles from Florida.
- McConnaughey - Teaching at Oregon Institute of Marine Biology Charleston, Oregon, and the University of Oregon Eugene Oregon.
- McEdward - Respiratory electron transport activity during larval development of Lytechinus variegatus.
- McIntosh - Classification of early Paleozoic cladid in-  
adunate crinoids; paleoautecology and synecology of Devonian crinozoans and blastozoans; a new genus and family of Silurian crinoid.
- McKemie - Morphology and taxonomy of Agmocrinus tribrach-  
iatus (n.g., n.sp.).
- McKnight - Distribution W.W. Pacific fauna.
- Meijer - Calcium-binding proteins and protein phosphorylation in starfish eggs at maturation.
- Merger - Community organization in a tropical rocky inter-tidal habitat.
- Messing - A revision of the tropical western Atlantic crinoids.
- Meyer - Ecology and distribution of Indo-West Pacific shallow-water crinoids (Australia, Palau, Indonesia, Indian Ocean)(with Macurda). Paleoecology of U. Ordovician edrioasteroid beds, Ohio, Kentucky.

- Miller - Shallow water holothurians of the western north Atlantic; larval development of Coelopleurus floridanus; Ecology of Holothuria (Vaneyothuria) lentiginosa erodis.
- Mironov - Systematics and distribution of echinothuriid and meridosternin echinoids. Revision of Myriotrochidae.
- Mitrovic - Biostratigraphy and paleoecology of Cretaceous Echinoidea.
- Mladenov - A study of the reproductive biology and larval development of the northeast Pacific feather star Florometra serratissinid.
- Morgan - Mg/Ca ratios in tests of fossil Clypeasteroid echinoids as paleoecological indicators.
- Morishita - Biostratigraphy and Paleoecology of Mesozoic and Cenozoic Echinoids.
- Mukai - Population dynamics of Archaster typicus. Feeding habit of Astropectinid sea-stars.
- Morrell - Skeletogenesis in sea urchin larvae, effects of pollutants on normal development.
- Muscat - Synonymy of Amphiodia urtica and Amphiodia digitata. Dissertation topic: "Factors determining the distribution and abundance of an intertidal ophiuroid population". species - Ophioplocus esmarki, initial factors to be tested - physical disturbance and intraspecific interaction.
- Nagahama - Mechanism of oocyte maturation in Echinoderms and Teleosts.
- Nateewathana - Taxonomy of echinoderms, especially holothurians of the Andaman Sea.
- Nauen - Seasonal growth of sea stars.
- Nestler - Maastrichtian Cidarids.
- Nichols - Population studies on the European sea-urchin, Echinus esculentus. Functional morphology of the madreporic complex in echinoderms.
- Niesen - Alternate steady states of sea star populations.
- Nojima - Ecological energetics of Astropecten latespinosus; ecological role of this species in the community.
- O'Brien - Factors affecting the distribution of shallow

- water asteroids in the western Atlantic.
- O'Connor, B. - Population dynamics of Amphiura filiformis, breeding of Leptosynapta minuta.
- O'Connor, C. - Deep sea echinoid reproduction.
- Oguro - Significance of development and metamorphosis in Asteroid phylogeny.
- Ohta - Zonation and life-forms of deep-sea echinoderms.
- Okada - Formation of the secondary sexual characters in sea urchins (with Y. Tahara).
- Okazaki - Differentiation of the spicule forming cells studied by the use of in vitro system of the isolated micromeres at the 16-cell stage.
- Oldfield - Revision of Australian Ophiotrichidae and Ophiidermatidae.
- Otsu - Estudios sobre procesos de obtencion de semilla de Loxechinus albus (erizo comestible).
- Oudejans - The process of vitellogenesis in Asterias rubens, biosynthesis of triacylglycerols and neutral ether lipids in Asterias rubens.
- Pabian - Late Pennsylvanian crinoids, mid-continent U.S., taxonomy, palioecology, biostratigraphy, Argentine Ls., Stull Sh., Plattsburg Ls., Wann Sh.
- Pagett - Strontium/calcium atom ratios in echinoids and ophiuroids.
- Paine - "Organizatin" of rocky intertidal communities.
- Parsley - Paracrinoids, diploporids, pleurocystitids, mitrates of the Bromide Formation; revision of the North American Mitrata (with K.E. Caster).
- Patent - EM study of oogenesis in Gorgonocephalus (with G. Patent).
- Paterson - NE Atlantic Ophiuridae and Ophiacanthidae.
- Paul - Revision of the Cyclocystoidea, functional morphology of stereom structures in fossils (with A. Smith).
- Pearse - Experiments on the effects of food and varying photoperiods on gametogenesis in asteroids and echinoids.

- Pearson - Acanthaster planci, ecology on Great Barrier Reef, biology and ecology of commercial species of holothurians on the Great Barrier Reef.
- Pentreath - Radiamchides in echinoderms.
- Pentreath, V. - Synaptic structure.
- Perry - Calcium controlled oxygenases in the sea urchin egg.
- Petersen - Effects of temperature and salinity on development and survival of echinoids, aspects of oxygen uptake in ophiuroids.
- Phelan - Function of the compasses in the Aristotles lantern. Developing a method for observing the compasses functioning in a living echinoid.
- Philippe - Echinides du facies "Marnes bleues de Faucon", Miocene inferieur du Sud-Est de la France.
- Pires - Echinaster spp. from the coast of Brazil; the rock-burrowing action of Echinometra lucunter.
- Poretzkaja - Inner structure of the test of the genus conoclypus L. Agassiz.
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- Pestedge - Patiriella vivipara. Growthrate; birthrate; length of time from birth to reproduction; how long the reproductive life is; how long the animal lives for; effect of varying salinity concentrations, and any general observations on behavior etc.
- Priest - I display crinoids all over the Mid-west from Michigan and Minnisota to Texas and Ohio to Kansas and Nebraska. I collect them in the field and clean them for display. I also work with Harrell Strimple at U. of Iowa.
- Profant - Protozoan symbiotes of regular echinoids.
- Prokop - The Family Hexacrinidae Bassler, 1938/ Crinoidea/ in the Devonian of Bohemia.
- Rahaman - Cretaceous echinoids of Ariyalur- South India.
- Raja - Biochemical and histochemical studies on oogenesis in echinoids and asteroids of Madras coast.
- Raymond - Fine structure and innervation of the echinoid water vascular system.

Regis - Microstructure des piquants des Cidaridae mediterraniens et tropicaux - problemes d'adaptations morphofonctionnelles. Mise en evidence d'absorption de particules dissoutes et en suspension par les piquants de divers Echinoides. Importance de la microstructure des radioles.

- Reimer - Review of feeding behavior in invertebrates.

Regnell - Cystoids from various countries; silurian ophiuroid from Gotland, Bolboporites.

Rieger - Ultrastructural investigation of the lining cells in echinoderm tube feet.

Rho - On the Classification and distribution of the Echinoderms in Korea 1. Ophiuroidea and 2. Holothuroidea.

Roman - Echinides pleistocenes et recents de la mer Rouge.

Rose - Australian Jurassic echinoids, tertiary echinoids of Malta and nearby areas.

Roux - Stem joints of recent stalked crinoids. Morphofunctional analysis, evolutionary biogeography. Deepsea ecology.

Rowe - Echinoderm fauna southern Australia. Echinoderm fauna Tasmania, Long-term revision of H.L. Clark, 1946. Revisions of Mardoa, Gomophia, Hacelia, Tamaria and Ateg ophiasteria (with L.M. Marsh and M. Jangoux). Revision of Podosphaeraster (with D. Nichols and M. Jangoux). Revision of Pentacta with D. Pawson, Abrolhos holothurians with D. Pawson.

Rozhnov - Carboniferous crinoids (Moscow basin)

Rutherford - Incidence of parasitic snails on Holothuria atra and Actinopyga maurifiana in Hawaii.

Salazar - Toxicity testing of dredge spoils, development of a bioindicator system using byssal thread production in mussels.

Salvat - Annual changes in the gonads of Anasterias minuta.

Sastry - Taxonomy: Asteroidea, Ophiuroidea, Echinoidea.

Sato - Thermodynamic analysis of association-dissociation reaction of mitotic spindle in developing echinoderm zygotes. Isolation and purification of tubulin paracrystals.

- Scally - Differential teeth wear: abrasion and sharpening wear (Thegosis) in echinoid teeth.
- Scheibling - The ecology of Oreaster reticulatus (L.) in the Caribbean. Ph.D. thesis, Mcbill U.
- Schuetz - Metabolism of methyladenine.
- Schuhmacher - Impact on coral growth feeding of corals.
- Seibertz - Biostatistic and migration of the Ecuomanian and Turonian Echinocorys sphaerica/gravesi - group.
- Sevastopulo - Functional morphology of carboniferous microcrinoids (with N. Lane).
- Shick - Nutritional and reproductive biology of the infaunal mud star Ctenodiscus crispatus.
- Shirai - Maturation - action of 1-methyladenine, fertilization - as a phenomenon subsequent to maturation.
- Shirley - Spatial and temporal variations in ophiuran distributions in the NW Gulf of Mexico.
- Sibuet - Abyssal Ecology of Echinoderms in Bay of Biscay.
- Silver - A survey of the evisceration response in tropical holothurians. Investigation of the mechanism of evisceration.
- Simpson - Reproduction of sub-Antarctic asteroids and holothurids.
- Singletary - morphological variations of Arbacia punctulata in Long Island Sound.
- Smith - Plate growth and stereom microstructure, recent and fossil echinodermata.
- Solovjev - Morphology, phylogeny of Cretaceous and Paleogene Spatangoid Echinoids.
- Speel - Antarctic crinoids - systematics and zoogeography.
- Spencer - Population dynamics of Strongylocentrotus droebachensis.
- Splechtna - Skeletal systems, connective tissue - muscles.
- Sprinkle - Echinoderm faunas from the Bromide Formation (Middle Ordovician) of Oklahoma (monograph with 8 other authors plus several shorter papers); New Middle Ordovician Hybocrinid from Nevada ( with McKemie); New echinoderms from the Late Cambrian of Missouri (with Strimple);

- chapter on echinoderms for paleontology text.
- Stancyk - Life history pattern of Ophiothrix angulata in South Carolina.
- Stoeppelwerth - Oocyte resorption in Luidia clathrata; its description, natural occurrence, and regulating mechanisms.
- Stokes - Cretaceous spatangoid echinoids of Britain. Echinoids around the Cretaceous-Tertiary boundary.
- Strathmann - Hybridization and competition between Strongylocentrotus droebachiensis and S. pallidus; adult size, egg production, and brooding versus free spawning in selected echinoderms.
- Strimple - Permian crinoids of the Glass Mountains, Texas.
- Sugiyama - Species-specific interaction between gametes in sea urchins.
- Surrano - E-G-G Survey - U. of Delaware benthic component of Baltimore Canyon effects by perturbation.
- Sutton - Taxonomy of Amphiodia urtica and related species; ecology of San Francisco Bay; re-organization of ophiuroid collections of California Academy of Sciences;
- Tahara - Secondary sexual characters in sea urchin, its morphology and development.
- Tantichodok - Taxonomy of echinoderms, especially holothurians of Andaman Sea.
- Takahashi - Catch mechanism in echinoid spine. Mechanism of spermatozoan motility.
- Tegner - Multispecies considerations of resource management in southern California deep beds with an emphasis on sea urchins, Experimental Abalone Enhancement Program.
- Tertschnig - Ecology and distribution patterns of the Mediterranean sea urchins Paracentrotus Liv, Arbacia Lix. and Psammechinus miliaris in sea grass meadows around Ischia Island, Gulf of Naples.
- Thandar - Holothurian fauna of southern Africa.
- Thomas - Continental Shelf paper.
- Thompson - Distribution and abundance of echinoderms in Hong Kong waters.



- Tommasi - Echinoderms of Antarctic and subantarctic regions.
- Tortonese - Mediterranean fauna.
- Town - Population dynamics, reproduction and feeding in Astrostole scabra (asteroidea: forcipulata).
- Turki - Etude des Echinides Mesogorique de Tunisie, en vue d'une these d'Etat.
- Turner - Disc regeneration in Ophiophragmus; systematics of Florida species of Echinaster; diet of Ophiophragmus; salinity tolerance and distribution of Ophiophragmus; skeletal morphology of Echinaster.
- Tyler - Reproductive strategies in deep sea ophiuroids and holothurians.
- Ubaghs - A probably new species of stylophorian carpoid from the Lower part of France (Montagne Noire).
- Urbina - "Anatomia e Histologia de Athyonidium chilensis (Semper) (THYONIDIINAE-CUCUMARIIDAE-HOLOTHUROIDEA-ECHINODERMATA)".
- Vadas - Feeding ecology of sea urchins in The Virgin Islands (with S.C. Ogden), Population genetics of Asterias in Maine (with B. May and P. Gagnon).
- Van der Plas - The pyloric caeca of the female seastar Asterias rubens during its annual reproductive cycle.
- Voogt - Role of steroids in the reproduction of Asterias rubens.
- Wahlman - Echinoderms of the Lower Silurian Brassfield Fm. in Ohio-Indiana-Kentucky region. Some Lower Ordovician echinoderms from El Paso Group of southwestern Texas. Siurian reef echinoderm paleoecology.
- Walenkamp - Taxonomy and zoogeography.
- Walker - Spermatogenesis, the structure and function of the spermatogenic microenvironment in asteroids - an ultrastructural and histochemical study. Bacteria and brooding in the ophiuroid, Axiognathus (amphipholus) Aquanata adunata.
- Waren - A taxonomical revision of the gastropods parasitizing echinoderms.
- Waters - Evolution and paleoecology of Pertremites (Blastoidea)(with D.B. Macurda, Jr. and A.S. Horowitz).

- Weber - Tiguent cells in the epithelium of Centrostephanus longispictus.
- Webster - Some Jurassic and Cretaceous crinoids from the Himalayas with V.J. Gupta. Some Silurian and Devonian crinoids from the Himalayas with V.J. Gupta. Permian crinoids from Western Australia. Continuing bibliographic compilation of Paleozoic crinoid literature. Study of faunas, paleogeography, and sediment relationship of Lower and Middle Mississippian of the western U.S.
- Welch - Population dynamics of Pennsylvania crinoid colonies living in algal banks of Illinois Basin.
- Wellington - Factors influencing coral zonation pattern in the Eastern Pacific.
- Witzke - The echinoderms of the Hopkinton Dolomite, Lower Silurian, eastern Iowa.
- Wolfe - Sigsbeia and Schizostella species.
- Woodley - Operation and function of ophiuroid tube-feet and their mucous glands.
- Wilkie - Structure and function of the cirri of Antedon bifida.
- Word - Taxonomic standardization program, investigating effects of sewage on marine coastal communities, key to 76 California ophiuroid species.
- Wright - Cassiduloids - New English Cretaceans.
- Yamaguchi - (with students) Feeding behavior of Acanthaster. Covering behavior and migration in echinoids. (I am working on cnidarians and mollusks).
- Yanagisawa - Genome analysis of sea urchin DNA, metabolism of RNA and mucopolysaccharides.
- Yensen - Heliaster food web.
- Yoshida - Regeneration of starfish ocellus.
- Zavodnik - Echinoderms in the circalittoral zone of the Adriatic Sea.
- Zeidler - Revision of the genus Nectria (Asteroidea), Echinoderm fauna of Southern Australia.

## Ph.D. Dissertations

- Ackerman, J. McG. 1972. The demography of the marine Mussel, *Mytilus californianus*. Univ. of California, Berkeley. (*Pisaster ochraceus* as predator).
- Ahlfield, T.E. 1977. A disparate seasonal study of the reproduction of eight deep-sea macroinvertebrate species from the northwestern Atlantic Ocean. Florida State Univ. (includes three species of ophiuroids, one species of echinoid).
- Amy, C. McD. 1976. Properties of adenylate cyclase studied in early development in the sea urchin. Univ. of Virginia.
- Barnes, J.R. 1972. Ecology and reproductive biology of *Tonicella lineata* (Wood, 1815) (Mollusca, Polyplacophora). Oregon State Univ. (*Pisaster ochraceus* and *Leptasterias hexactis* as predators).
- Belanger, A.M. 1963. Movement of echinochrome pigment granules in sea urchin embryos. Case Western Reserve Univ.
- Bowlus, R.D. 1979. Solute compatibility with biological macromolecules: the influence of the major intracellular solutes of marine invertebrates on enzyme structure and function. Univ. of California, San Diego. (includes *Parastichopus*).
- Brandis, J.W. 1978. Translational efficiency: part of the mechanism accelerating the rate of protein synthesis following fertilization of the sea urchin egg. Indiana Univ.
- Brett, C.E. 1978. Systematics and palaeoecology of late Silurian (Westlockian) pelmatozoan echinoderms from western New York and Ontario. Univ. of Michigan.
- Carroll, A.G. 1978. An electrophoretic analysis of the fate of sperm and egg histones of the sea urchin *Strongylocentrotus purpuratus* after fertilization, with an analysis of the possible role that proteolytic enzymes play in the fate of gamete histones. Michigan State Univ.
- Cohen, G.H. 1968. Sea urchin polysomes and their function during embryogenesis. Univ. of Miami.
- Grandall, D.E. 1975. Pyrimidine metabolism and its regulation in the sea urchin (*Arbacia punctulata*). Univ. of Rhode Island.
- Cross, C.M. 1975. Growth and reproduction in small populations of a marine macroalga in the intertidal zone of a rocky shore. Univ. of Oregon. (refers in general to role of echinoids).
- Defenbaugh, R.E. 1976. A study of the benthic macroinvertebrates of the continental shelf of the northern Gulf of Mexico. Texas A&M Univ. (includes 30 species of echinoderms).
- DeGroff, R.C. 1974. The effect of marine toxin holothurin-A on squid axon membrane. Duke Univ.
- Devlin, R.B. 1976. Mitochondrial messenger RNA synthesis during early sea urchin development. Univ. of Virginia.

- Dimock, R.V., Jr. 1971. Ecology and physiological aspects of host recognition by a symbiont polychaete. Univ. of California, Santa Barbara. (symbionts on holothuroids and asteroids).
- Edwards, B.F. 1978. Hatching enzyme in the sea urchin *Strongylocentrotus purpuratus*: purification, characterization, and time of synthesis. Univ. of California, Davis.
- Fansler, B.S. 1972. The reversible association of DNA-polymerase with the nucleus in early development of the sea urchin. Univ. of Pennsylvania.
- Fell, F.J. 1976. The Cidaroida (Echinodermata: Echinoidea) of Antarctica and the southern oceans. Univ. of Maine.
- Garnas, R.L. 1975. Comparative metabolism of pesticides by marine invertebrates. Univ. of California, Davis. (includes *Pisaster ochraceus*).
- Gerard, V.A. 1976. Some aspects of material dynamics and energy flow in a kelp forest in Monterey Bay, California. Univ. of California, Santa Cruz.
- Glabbe, C.G. 1977. The isolation and characterization of the vitelline layer of the sea urchin egg and its role in fertilization. Univ. of California, Davis.
- Grainger, J.L. 1978. Activation of the sea urchin egg: the role of the cell surface and the intracellular environment. Univ. of California, Berkeley.
- Greenway, M. 1976. The production and utilization of *Thalassia testudinum* König in Kingston Harbour, Jamaica. Univ. of the West Indies. (includes *Lytechinus variegatus*).
- Hamada, S.H. 1976. The morphological events during the self-reassembly of the sea urchin embryo in culture. Oregon State Univ.
- Harpold, M.M. 1976. The evolution of repetitive and non-repetitive DNA sequences in sea urchins. Tulane Univ.
- Hobart, P.M. 1978. DNA polymerase in sea urchin embryos: purification, properties, and changes during early development. Wesleyan Univ.
- Innis, M.A. 1976. Regulation of mitochondrial biosynthetic activity in early sea urchin development. Tulane Univ.
- Kaumeyer, J.R. 1978. Messenger ribonucleoprotein particles in unfertilized sea urchin eggs. Indiana Univ.
- Kidd, P.M. 1976. The ultrastructure of the sea urchin egg surface complex before and after isolation. Univ. of California, Berkeley.
- Lane, J.M. 1977. Bioenergetics of the sand dollar, *Mellita quinquiesperforata*. Univ. of South Florida.
- Lee, H., II. 1978. Seasonality, predation, and opportunism in high diversity soft bottom communities in the Gulf of Panama. Univ. of North Carolina, Chapel Hill (includes ophiuroids).
- Lesink, C. 1962. The history and status of sea otters in Alaska. Purdue Univ. (includes *Strongylocentrotus polyacanthus*).

- Lessner, A.L. 1978. Factors affecting the distribution and abundance of the sea urchin *Centrostephanus coronotus*. Univ. of Southern California.
- Lessios, H.A. 1979. Molecular, morphological and ecological divergence of shallow-water sea urchins separated by the Isthmus of Panama. Yale Univ.
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Masters' and Ph.D. Dissertations

Supplement

M.A. or M.S.

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## Recent Publications and Papers in Press

This list is based upon Newsletter replies plus reprints received. It includes papers published in 1978 or later. Please note that many of the papers listed below as "in press" will already have been published.

Albuquerque. Amphiruridae.

Anderson, J.M. 1978. Studies on functional morphology in the digestive system of Oreaster reticulatus (L.). Biol. Bull., 154: 1-14.

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